

FREQUENTLY ASKED QUESTIONS (FAQ) CONCERNING VAPOR INTRUSION

1. How are the vapor intrusion investigation distance criteria (of 100 feet for any free product or non-petroleum contamination and 30 feet for petroleum related contamination) presented in Section 3.1 of the NJDEP Vapor Intrusion Guidance, October 2005 (VIG) applied at a site?

The distance criteria are applied from the edge of the ground water plume when determining which structures should be investigated. It is unacceptable to assume the vapor intrusion pathway is incomplete based on the collection of a ground water sample at a distance less than the prescribed criteria. The distance criteria are based on the migration of vapors through the vadose zone and are irrespective of the presence of contaminated ground water within that distance. The criteria are also applied exclusively to the horizontal or vertical distance from the contaminated groundwater plume. The application of the diagonal distance is not acceptable.

2. Should the indoor air and soil gas analytical results be reported to the Department in both $\mu\text{g}/\text{m}^3$ and ppbv units?

Indoor air and soil gas analytical results should be presented in $\mu\text{g}/\text{m}^3$ units in any result tables generated by the consultant and in the document text. The Department is eliminating the screening levels in ppbv units from the tables since presentation of the screening levels in two different units has led to confusion over the reported results. The above soil gas/indoor air analytical results and any text evaluation of the data submitted to the Department should therefore be presented in $\mu\text{g}/\text{m}^3$ units only.

3. When do I have to conduct sub-slab soil gas sampling to assess the vapor intrusion (VI) pathway? Is there any situation where the collection of near slab soil gas samples is an appropriate alternative?

The Department recommends ground water (in most circumstances) as the first medium to be investigated for the VI pathway (Stage 4A of the Appendix A Decision Flow Chart). If the ground water data exceed the NJDEP Ground Water Screening Levels, further investigation will be necessary. The next stage of the VI investigation is the collection of soil gas samples (Stage 4B of the Decision Flow Chart).

The NJDEP Vapor Intrusion Guidance (VIG) document clearly states “exterior soil gas sampling is not acceptable as the exclusive determinant in the assessment of the VI pathway. The Department’s preference is for the collection of sub-slab over near slab soil gas samples” (Section 6.3.1.1). In addition, “many of the same factors that make exterior soil gas sampling inappropriate as a stand-alone determination of VI also apply in some extent to near slab soil gas sampling.” Recent studies conducted by the USEPA and various state agencies have raised serious concern as to the appropriateness of near slab soil gas data in the investigation of the VI pathway. As a result and as indicated in the VIG, the Department should approve the utilization of near slab soil gas sampling in advance of the sampling event.

A soil gas investigation should therefore be conducted using sub-slab soil gas samples as the primary tool in the assessment of the VI pathway. Near slab soil gas sampling is ONLY acceptable when specific technical issues make sub-slab soil gas sampling impossible (i.e., very high water table) or the building owner refuses access.

4. Do I need to obtain an air pollution control permit from the Department when a depressurization system is installed for vapor intrusion? Whom do I contact to determine whether a permit is necessary?

A Sub-Slab Depressurization System (SSDS) would not need an Air Pollution Control (APC) Permit if the SSDS is installed and operated at one or two family dwellings or a dwelling with six or less family units, one of which is owner occupied.

An SSDS would need an APC Permit if the SSDS was installed in a building located on a closed or operating dump, sanitary landfill, hazardous waste landfill, or other solid waste facility.

For any other installation scenario involving an SSDS, the appropriate field office should be contacted to determine whether an air permit is necessary. NJDEP Air Enforcement Regional Office contact information may be found at <http://www.nj.gov/dep/enforcement/air.html>.

5. What screening levels do I use when evaluating crawl space air data?

As outlined in Sections 3.2 and 6.4.3 of the NJDEP Vapor Intrusion Guidance document, crawl space air analytical results must be compared directly to the Indoor Air Screening Levels (IASL). The Department, consistent with USEPA, has determined that an attenuation factor of 1 is applicable to crawl space data resulting in comparison of the analytical results to the IASL.

6. Should an investigation for vapor intrusion, including indoor air and sub-slab soil gas sampling, be conducted in a building where operations use, handle or store the same contaminants of concern (COC)? Examples of these operations include dry cleaners, active gas stations or maintenance facilities, and various industrial operations.

In general, the Department does not require the collection of sub-slab soil gas and indoor air samples in the above situations due to the difficulty in determining whether air contaminants present in a structure are from operational activities within the facility or from vapor intrusion. On a case-specific basis, sub-slab soil gas and/or indoor air sampling may be useful in the above situations to help identify the relative contribution to indoor air from background sources (including operational activities) and vapor intrusion.

Indoor air sampling and sub-slab soil gas sampling, as outlined in the NJDEP Vapor Intrusion Guidance (VIG), may be appropriate at sites where only limited use of the COC is occurring (i.e., minor or short-term use of a solvent in a large warehouse).

Sub-slab soil gas and indoor air sampling should be conducted in those areas of a building or structure under one roof (such as a strip mall) not associated with the storage, handling or use of the vapor intrusion related COC. Example situations include businesses adjacent to a dry cleaner in a strip mall or the office portion of a structure located outside of the production area of a building where the adjacent structures could be impacted by vapor intrusion from subsurface contamination.

The potential for a future change in the use of a structure or the COC within a structure must be considered and addressed in these situations.

7. Does the Department require the installation of a subsurface depressurization system to address the vapor intrusion pathway in buildings that use, handle or store the same contaminants of concern (COC)?

In structures where COC are currently used in the facility operations, Occupational Safety and Health Administration (OSHA) indoor air quality standards apply. These air quality standards are usually much higher than indoor air concentrations found in cases where vapor intrusion occurs. The Department is not responsible for enforcement of OSHA standards. As a result, it is unlikely that the Department will require an active control, such as a subsurface depressurization system, in a building where these operations are occurring and a system would likely prove ineffective in addressing the source.

The Department may require some type of active or passive control to protect adjacent structures where the Indoor Air Screening Levels (IASL) are applicable, if site-specific conditions and investigations indicate these structures are being, or could be, impacted by vapor intrusion. In addressing these situations, the Department may notify and/or coordinate with other government entities responsible for regulation of industrial and/or commercial operations.

The potential for a future change in the use of a structure or the COC within a structure must be considered and addressed in these situations.